DPM 533

REC'D MAR 01 1988

MATERIAL SAFETY DATA SHEET

Dow Chemical U.S.A. Midland, MI 48674 Emergency Phone: 517-636-4400

Product Code: 55590 Page: 1

PRODUCT NAME: METHYLENE CHLORIDE, TECHNICAL

Effective Date: 01/26/88 Date Printed: 02/04/88 MSDS:000009

1. INGREDIENTS:

Methylene chloride CAS# 000075-09-2 99.9%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. PHYSICAL DATA:

BOILING POINT: 104F (39.8C)
VAP PRESS: 355 mmHg @ 20C
VAP DENSITY: 2.93
SOL. IN WATER: 2.0g/100g @ 25C
SP. GRAVITY: 1.320 @ 25/25C
APPEARANCE: Colorless liquid.
ODOR: Penetrating ether-like odor. Irritating at high concentrations.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: None
METHOD USED: TOC, TCC, COC

FLAMMABLE LIMITS
LFL: 13% @ 25C
UFL: 23% @ 25C

EXTINGUISHING MEDIA: Water fog.

FIRE & EXPLOSION HAZARDS: Forms flammable vapor-air mixtures. Lower temperatures increase the difficulty of getting it to ignite.

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3. FIRE AND EXPLOSION HAZARD DATA: (CONTINUED)

FIRE-FIGHTING EQUIPMENT: Wear positive pressure self-contained breathing apparatus.

4. REACTIVITY DATA:

STABILITY: (CONDITIONS TO AVOID) Hydrolysis producing small amounts of hydrochloric acid possible with gross water contamination. Avoid open flames, welding arcs, or other high temperature sources which induce thermal decomposition.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Amines, aluminum, possibly sodium, potassium, and magnesium.

HAZARDOUS DECOMPOSITION PRODUCTS: Open flames and welding arcs can cause thermal degradation with the evolution of hydrogen chloride and very small amounts of phosgene and chlorine.

HAZARDOUS POLYMERIZATION: Will not occur.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: Small spills: Mop up, wipe up or soak up immediately. Remove to out of doors. Large spills: Evacuate area. Contain liquid; transfer to closed metal containers. Keep out of water supply.

DISPOSAL METHOD: When disposing of the unused contents, the preferred options are to send to licensed reclaimers, or to permitted incinerators. Any disposal practice must be in compliance with federal, state, and local regulations. Do not dump into sewers, on the ground, or into any body of water.

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6. HEALTH HAZARD DATA:

EYE: May cause pain, moderate eye irritation and slight corneal injury. Vapors may irritate eyes.

SKIN CONTACT: Prolonged or repeated exposure may cause skin irritation, even a burn. Repeated contact may cause drying or flaking of skin. May cause more severe response if confined to skin. Extensive skin contact with methylene chloride, such as immersion, may cause an intense burning sensation followed by a cold, numb feeling which will subside after contact.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The dermal LD50 has not been determined.

INGESTION: Single dose oral toxicity is low. The oral LD50 for rats is in the range of 1500-2500 mg/kg. If aspirated (liquid enters the lung), may be rapidly absorbed through the lungs and result in injury to other body systems.

INHALATION: Minimal anesthetic or narcotic effects may be seen in the range of 500-1000 ppm methylene chloride. Progressively

higher levels over 1000 ppm can cause dizziness, drunkenness; concentrations as low as 10,000 ppm can cause unconsciousness and death. These high levels may also cause cardiac arrythmias (irregular heartbeats).

Excessive exposure may cause irritation to upper respiratory tract. Excessive exposure may cause carboxyhemoglobinemia, thereby impairing the blood's ability to transport oxygen. In confined or poorly ventilated areas, vapors can readily accumulate and can cause unconsciousness and death.

SYSTEMIC & OTHER EFFECTS: Excessive exposure may cause central nervous system, liver or kidney effects. Excessive exposure may cause carboxyhemoglobinemia, thereby impairing the blood's ability to transport oxygen. Methylene chloride has been shown to increase the rate of spontaneously occurring malignant tumors in the B6C3F1 mouse and benign tumors in laboratory rats. Other

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6. HEALTH HAZARD DATA: (CONTINUED)

animal studies, as well as several human epidemiology studies, failed to show a tumorigenic response relatable to methylene chloride. Methylene chloride is not believed to pose a measurable carcinogenic risk to man when handled as recommended. Birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother. In animal studies, has been shown not to interfere with reproduction. Negative or equivocal results have been obtained in mutagenicity tests using mammalian cells or animals. This is consistent with the lack of interaction with DNA in rats and hamsters. Although results of Ames bacterial tests have generally been positive, overall the data suggest that genotoxic potential does not appear to be a significant factor in the toxicity of methylene chloride.

7. FIRST AID:

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Wash off in flowing water or shower.

INGESTION: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

INHALATION: Remove to fresh air. If not breathing, give mouth-to-mouth resuscitation. If breathing is difficult, give oxygen. Call a physician.

NOTE TO PHYSICIAN: Because rapid absorption may occur through lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.

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7. FIRST AID: (CONTINUED)

Exposure may increase "myocardial irritability." Do not administer sympathomimetic drugs unless absolutely necessary. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): ACGIH TLV is 100 ppm; STEL is 500 ppm. OSHA PEL is 500 ppm; TWA ceiling is 1000 ppm; PEAK is 2000 ppm.

VENTILATION: Controlling airborne concentrations below the ACGIH TLV exposure guideline is recommended. Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Lethal concentrations may exist in areas with poor ventilation.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. The effectiveness of an air purifying respirator is limited. Use it only for a single short-term exposure. For emergency and other conditions where the exposure guideline may be greatly exceeded, use an approved positive pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved positive pressure self-contained breathing apparatus.

SKIN PROTECTION: For brief contact, no precautions other than clean body-covering clothing should be needed. When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation.

EYE PROTECTION: Use safety glasses. Where contact with liquid

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8. HANDLING PRECAUTIONS: (CONTINUED)

is likely, chemical goggles are recommended. If vapor exposure causes eye discomfort, use a full-face respirator.

9. ADDITIONAL INFORMATION:

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:
Exercise reasonable care and caution. Avoid breathing vapors. Store in cool place. Concentrated vapors of this product are heavier than air and will collect in low areas such as pits, degreasers, storage tanks, and other confined areas. Do not enter these areas where vapors of this product are suspected unless special breathing apparatus is used and an observer is present for assistance. The use of air for unloading product out of vessels or transport containers is not recommended.

Manual operations involving the potential for skin contact, such as some cold cleaning operations, or cleaning operations involving large surfaces, should be approached with special caution, due to the volatility of methylene chloride. Increased ventilation or respiratory protection may be required to reduce the potential for overexposure to vapors. Gloves or other protective equipment should be worn if skin contact is likely.

The Consumer Products Safety Commision issued a Statement of Policy for household products containing methylene chloride. The policy statement establishes labeling guidelines for consumer products containing methylene chloride (including paint strippers, wood stains and varnishes, spray paints, adhesives and glues, and a number of other household products). The policy requires labels to include statements of principal hazard and indicate that the risk to the user is related to the level and duration of exposure. It appeared in the Federal Register, Vol. 52, No. 177, on Monday, September 14, 1987.

MSDS STATUS: Revised 2, 8 and 9.

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03 SEPTEMBER 1985

ALERT
ON
METHYLENE CHLORIDE

The Hazard Evaluation System and Information System (HESIS), State of California, has issued a Hazard Alert on Methylene Chloride (dichloromethane). Here at DAC one of our solvents, C-50, Chlorosolve Cleaner, DPM 5069, contains 80-90% methylene chloride. HESIS states that in recent tests, methylene chloride caused cancer in laboratory animals. Whether it can cause cancer in humans has not been adequately studied; however, because of the animal studies this alert has been issued as a precautionary measure.

Workplace exposure limits for methylene chloride have not changed and remain at a time weignted average of 100 parts per million (ppm) for any 8-hour workshift. The toxilogical tests used to establish this alert, exposed mice and rats to extremely high concentrations of methylene chloride: 1,000, 2,000 and 4,000 ppm, 5 days per week for 102 weeks.

Cleaning or stripping with C-50 (methylene chloride) in large areas may cause an exposure above 100 ppm. Cleaning aircraft fuel tanks or cargo holds and stripping the preservative coat off the aircraft may cause an exposure over 100 ppm. In these situations an airline respirator must be worn. An ordinary cartridge respirator (organic vapor) will no longer be considered.

If you have any questions about the use of methylene chloride or wish to read the entire Hazard Alert, contact your supervisor and Occupational Safety will make a copy available.

If you have additional questions, call Occupational Safety & Health Services at extension 3-4233.

H. L. Cook
Manager
Occupational Safety & Health Services